

## Sabbatical Report – Fall 2025

**Name of faculty:** Lisa Winch

**Date of sabbatical approval:** February 2024

**Date of sabbatical leave:** Winter Semester 2025

(Original proposal wording in italics)

**Statement of Purpose:**

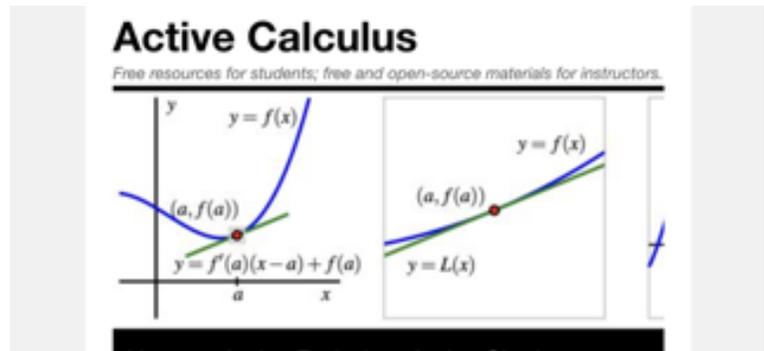
*I requested a one-semester sabbatical to investigate and research Open Education Resources for Calculus. Open Educational Resources (OER) are learning and teaching materials in any format and medium that reside in the public domain or are under copyright that have been under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others. Further investigation and research into interactive online texts called Active Calculus will be conducted during this sabbatical. Another aspect of this sabbatical will be to use large language models such as OpenAI's GPT models to enhance the teaching and learning of mathematics. My goal is to pilot the Active Calculus free online text and materials along with GPT examples with Calculus 1 (Math 160) students for the Fall 2025 semester at KVCC.*

**Objectives and narrative description:**

*Active Calculus and Active Calculus Multivariable are free, open-source texts designed for an active learning experience for students. The texts are authored by multiple Mathematics Professors including Matt Boelkins, David Austin and Steve Schlicker who all teach at Grand Valley State University. A fundamental principle that motivates the open textbook community is that students should have access to everything they need to be successful on the first day of class. Accessibility is a key design feature of PreTeXt, the authoring system that Matt uses to create his free books. For example, a visually impaired reader can easily navigate the web versions of the Active books using a screen reader, and Rob Beezer, the founder of PreTeXt, recently made a braille version of Active Prelude directly from Matt's PreTeXt source. David Austin is developing software to create accessible mathematical diagrams and graphs using tactile graphics, which communicate visual information by touch, braille type graphs. For more information see the Raised Mathematics site, <http://raisedmathematics.org>.*

*Active Calculus offers a wide range of ancillary materials and there is an active Google Group for Instructors. In addition, there is an online homework companion to Active Calculus called edfinity. Edfinity is adaptive, supported by the National Science Foundation, and can integrate with Canvas.*

*I have been in contact with Matt Boelkins who has generously offered to work with me to investigate these student driven activities. My objective would be to attend class sessions at GVSU that are using Active Calculus and to work with Matt Boelkins to set up a KVCC course and experiment with the electronic format and live .html links to java applets. A letter of support from Matt Boelkins is attached.*



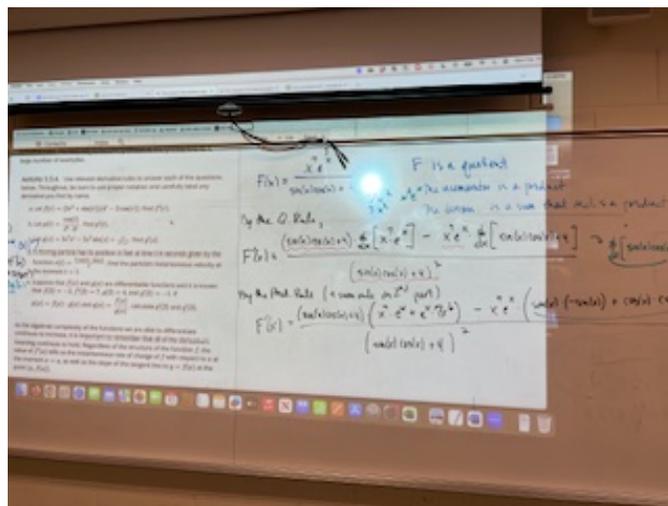
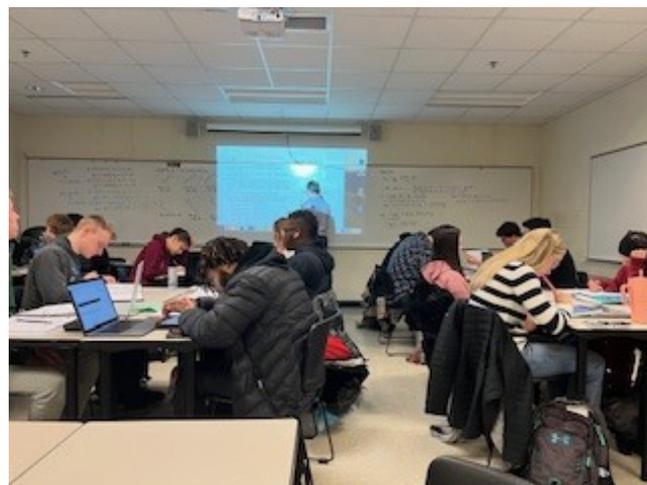
## Sabbatical Report:

For this part of my sabbatical, I attended Matthew Boelkins Math 201 Calculus 1 course that met on Mondays and Wednesdays from 11:00 am – 12:50 pm at GVSU. Other than a few sketchy days driving to Grand Rapids in the Winter, I loved attending and observing Matt's Calc 1 class.

He started the first day by putting students at tables in groups of four, each table set had a grid of the room with student's names at the various tables. He gave students time to talk and get to know each other, while he moved around the room talking to groups and individuals, getting their names and taking notes to remember their names. After a brief introduction about himself, Matt went around and identified each student by name without looking at his table grid. The students were very impressed but Matt shared that their names were in alphabetical order around the room which helped with remembering their names, see Figure 1. Matt continued to use names and called on students regularly to respond to questions and explain their thinking. This allowed for a very personable approach to encourage student involvement. I want to model this approach by having groups respond to questions as well as individual thoughts and strategies.

Everyday students worked on activities from the textbook companion Activities Workbook that students purchased for \$10. Every few weeks, Matt changed the groups and about mid-semester he asked students if they would like to keep their groups or continue to change them. Students choose to continue to change up the groups.

**Figure 1:** Pictures of Matt's students at GVSU:



Every few weeks, Matt assigned either a few Written Homework problems or a Lab Project that students started working on together in class and then completed on their own to upload to their learning management system, BlackBoard. In addition to these uploaded assignments, students completed on-line homework using WebWorks which is housed on GVSU's main server and is linked with Blackboard for easy student's scores integration. There is need for integrating homework with on-line textbook and college's learning management systems.

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At **Grand Valley State University (GVSU)**, **WeBWorK** is an **online homework system** used in many mathematics courses, including **Calculus I (MTH 201)** and **Calculus II (MTH 202)**.

 What is WeBWorK at GVSU?

- It's a **web-based platform** where students complete math assignments.
- Problems are algorithmically generated, so each student gets a unique version.
- It provides **instant feedback** on answers, helping students learn through trial and correction.
- Instructors use it to assign homework, quizzes, and practice problems aligned with course content.

 WeBWorK is used in a wide range of GVSU math courses, including:

- **MTH 201 – Calculus I, MTH 202 – Calculus II**
- **MTH 122 – College Algebra, MTH 110 – Intermediate Algebra**
- **And many others.** You can access GVSU's WeBWorK portal here: [WeBWorK at GVSU](#).

 Learning Support

GVSU also provides **video tutorials and Geogebra applets** to support learning in courses like Calculus I and II. These resources are available on the [Videos and Applets page](#).

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I found a few of the **Geogebra Applets** to be very useful with my Calculus class this semester, such as the links below:

- [Finding the slope of a tangent line by Robert Talbert](#)
- [Investigating the derivative of a function at a point by Robert Talbert](#)
- [Which one is the derivative?](#)

Each of these Geogebra Applets were linked in the Active Calculus textbook as the given topics were covered in class. They give 3-D dynamic visual of the relationship of derivative and slope of tangent line to a point. Also, graphs are used to help students see the relationship that a function, such as position or distance, and it's rate of change or derivative function, such as velocity. With a second derivative of position or first derivative of velocity, we can investigate acceleration or how the rate of change is changing over time. These tie ideas being studied together with real-life concepts.

Instead of tests, Dr. Boelkins uses Checkpoints every week where students take “mini-tests” with questions based on Learning Targets or learning objectives. Students receive a “Y” meaning Yes they got the concept or “NY” meaning they have Not Yet showed an understanding of the concept for each LT question. Students have multiple opportunities to re-take each LT until they earn a “Y” score.

I am using a variation of this alternative grading approach with my Calculus 1 students this semester. Every Thursday we take a short assessment which includes 4 or 5 learning target questions. Some are repeated from the previous week for those who have Not Yet mastered the learning objective and a few others are new LT’s for everyone. For my learning target questions, students receive a “Yes”, “Yes - ”, or “NY”. A “Yes” gets 100%, a “Yes - ” gets 90% and students can choose to keep the 90% or attempt again. Students who get an “NY” must continue to attempt the learning target questions. At this point, everyone has between 90% and 100% in the class since I am not recording “NY’s” as points yet. If a student’s stop coming to class, then a “NY” will turn into a zero in the gradebook. At the end of the semester, a few of the “NY’s” will be dropped in Canvas.

I have included a handful of the Checkpoints that I am using with my students this semester. See **Appendix 1** in my report folder. Students seem content with this approach so far. I plan to use the Final Exam as the last measure for students to re-attempt any un-mastered learning targets. For this semester’s class, I am using an extra projector that I keep in my office and wheel to class every day. This projector is attached to an additional laptop computer that I use to display the Active Calculus textbook onto the white board. I set up this projector and computer in the front of the classroom and take in down every day. The main computer and visualizer located on the classroom cart is used for Canvas, Edfinity homework and to project my writing as we complete the activities in the workbook. In addition, every morning before class starts, I move all of the tables into groups of 4 so that students can discuss the activities that we are working on from the workbook, see Figure 2. At the end of my classes, I put all the tables back into rows for the next instructor who may prefer the traditional table arrangement. This takes about 20 mins twice a day. My wish would be to have the desks in groups of 4 all the time.

**Figure 2:** Pictures of Lisa’s classroom (7560):



After further investigation, I realized that the online homework WebWorks used at GVSU would not be convenient to use with my students at KVCC. So, I asked Dr. Boelkins what he suggested that I use. His first choice was MyOpenMath (MOM) which is free for students. I knew that Mike Roty had tried to establish a learning tools interoperability (LTI) connection between MyOpenMath and Canvas so that student scores would sync but his request was denied. Matt's second choice was Edfinity, so I started the process to request of a LTI connection could be approved for Edfinity and Canvas. While I waited from May to August to hear about my NO response, I decided to use this inexpensive on-line homework platform anyway.

Edfinity has been working extremely well for me and my students this semester. They are able to click a link which send me an e-mail with any questions they may have. The homework questions match the type and flow of the question in the Active Calculus textbook. The only downfall is that I just have to manually input the student's scores every weekend. Maybe someday Edfinity can be integrated with Canvas for immediate feedback with students grades.

Interacting with Customer Support at Edfinity has been mostly helpful and smooth. Below find two examples of customer support interactions from this semester

**Example 1:**

Name: Lisa Winch

Email: [lwinch@kvcc.edu](mailto:lwinch@kvcc.edu)

Course: Math 160 - Calculus 1 - LWinch - F25, taught by Lisa Winch, [lwinch@kvcc.edu](mailto:lwinch@kvcc.edu)

Assignment: 3.5 Related Rates, due 10-21-2025 11:59 PM EDT

Item: #3 [https://edfinity.com/assessment\\_items/68f66a16cb258c796e56331c](https://edfinity.com/assessment_items/68f66a16cb258c796e56331c), answered correctly

Problem: <https://edfinity.com/problems/68753919dbda323c55abea51>

Message:

As the instructor, can I see students previous solutions? If so, how?

**Example 2:**

Customer Support<[customer.support@edfinity.com](mailto:customer.support@edfinity.com)>

Hi Lisa,

Thanks for writing to Edfinity Support. We're happy to help with this.

You can click on the student from the Scores tab of an assignment to view their work. Please see:

<https://edfinity.zendesk.com/hc/en-us/articles/360004945471-Viewing-a-student-s-work-on-an-assignment>

Once you're viewing their work, you can use the arrows to move between their attempts.

We hope that helps. Please let us know if you need anything else.

Best,

Edfinity Support

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Edfinity | Supported by the National Science Foundation

Edfinity Help Center: [edfinity.com/help](https://edfinity.com/help)

On October 22, 2025 at 11:40 AM, Edfinity ([noreply@edfinity.com](mailto:noreply@edfinity.com)) wrote:

An educator has reported a potential issue.

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**WMU Collaboration:**

After being approved for my Sabbatical proposal, I determined that Dr. Tabitha Mingus was using Active Calculus by Matthew Boelkins with her students at Western Michigan University. I immediately contacted Dr. Mingus and requested to attend some of her lectures and discuss what was going on at WMU with Calculus 1. Tabitha welcomed me and I was able to attend many of her classes during the Winter 2025 semester. Since some of the topics that are covered at WMU are not included in the Active Calculus text, Tabitha writes supplemental materials to use with her students. I really appreciate Dr. Mingus’s approach to teaching, she is calm, funny, thorough and very good with technology. She asks students thoughtful questions, waits patiently for responses and gives encouragement when students are not confident with putting their ideas out to everyone.

This semester Dr. Mingus is working with three graduate students who are each teaching a section of Calculus 1 using Active Calculus. I continue to attend her classes on Friday mornings and also have been able to join some of the weekly meeting where Tabitha and the graduate students talk about their past weeks teaching (successes and not so successful) as well what is to come in the following week. They are using a method they call “Quick Looks” where a figure is displayed for a short period of time and then students draw/write as much as they can remember. The figures are related to the topic for the day and when the figures are displayed again, they discuss everything about what they noticed. This is the first semester that Dr. Mingus has used these “Quick Looks” with her Calculus students but she and the graduate students have found them very useful for their students, See Figure 3. In general, the quick images routine develops mental imagery, builds vocabulary, improves spatial memory, and teaches students to analyze mental images. All of these improve students learning and remembering of concepts discovered.

Figure 3: Students in Dr. Mingus’s Calculus 1 class



In order to help the graduate students with teaching their sections of Calculus 1, Tabitha has developed slides in Amplify Classroom (formally called Desmos Classroom) that all students are assigned and can view on their own computers, both in class and at home. It works similar to a combination of on-line homework, Powerpoint slides and Desmos live applets. These live

applets include 3-D applications and often moving parts that students control with sliders. They also have on-line homework assignments within their learning management system, **eLearning**. Tabitha uses a combination of PowerPoint slides and drawing on the white board as she and her students discuss and work through ideas, exercises and applied problems. All of her methods help with consistency in teaching the material and with student experiences. I so enjoy attending Dr. Mingus classes, being a student for life is my comfort zone!

See **Appendix 2** for WMU information.

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*My other objectives for this sabbatical are to (1) take an online Applied Calculus course with modern real-life applications of Calculus, (2) learn to use large language models (LLM) such as OpenAI's GPT models (ChatGPT) to enhance the teaching and learning of mathematics, and (3) work with the Faculty Success Center to integrate the online homework edfinity with KVCC's Canvas platform.*

*(1) The Online Applied Calculus course is offered by Harvard University called, HarvardX: Calculus Applied! This is a course to learn applications of calculus to other fields and is designed for teachers looking for more authentic examples to use in their courses. This course will give instructors case study tools for single-variable calculus to create and analyze mathematical models used by real practitioners in social, life, and physical sciences. Some examples are how an x-ray is different from a CT-scan, and what this has to do with integrals and how biologists use differential equation models to predict when populations will experience dramatic changes, such as extinction or outbreaks. This course will also provide further instructions on how to use Desmos, an online graphing calculator, to illustrate calculus examples, <https://www.desmos.com> .*

A short introduction to this course: [Calculus Applied! | HarvardX on edX \(2 minute video\)](#)

For a longer 5-minute introduction:

[https://edx-video.net/HarvardXCalcAPL1x-V001600\\_DTH.mp4](https://edx-video.net/HarvardXCalcAPL1x-V001600_DTH.mp4)

The topics investigated in this course include:

- How standardized test makers use functions to analyze the difficulty of test questions;
- How economists model interaction of price and demand using rates of change, in a historical case of subway ridership;
- How an x-ray is different from a CT-scan, and what this has to do with integrals;
- How biologists use differential equation models to predict when populations will experience dramatic changes, such as extinction or outbreaks;
- How the Lotka-Volterra predator-prey model was created to answer a biological puzzle;
- How statisticians use functions to model data, like income distributions, and how integrals measure chance;
- How Einstein's Energy Equation,  $E=mc^2$  is an approximation to a more complicated equation.

While this course had some interesting uses of Calculus, the topics included would be more appropriate for graduate level or a cap-stone course in some student's field of study.

(2) I would like to research and investigate the how and why to use ChatGPT in calculus courses. ChatGPT is an AI writing tool developed by OpenAI that can provide valuable insights and suggestions for math-related questions and prompts. My objective would be to explore specific examples of questions that I can ask ChatGPT and learn to refine and tailor the questions for teachers and students specific needs and personalized situation. Some questions to evaluate with the tool are: How can I explain the concept of limit to my Calculus students in an engaging way? What are some real-life applications of the Mean Value Theorem that I can share with my Calculus 1 students? Can you provide me with a step-by-step solution to solving integrals with trig substitution?

While I watched a few videos, webinars and podcasts during my sabbatical months, it wasn't until I got back in the classroom this fall where I could apply using AI with students. My student asked the question, "What happens to the dx?"

He was referring to taking an indefinite integral, for example  $\int x^2 dx = \frac{1}{3}x^3 + C$

This is a good question with a complicated answer, so I used AI to research the students question and brought a small report (student handout) to everyone in our class the next day. I was thrilled!

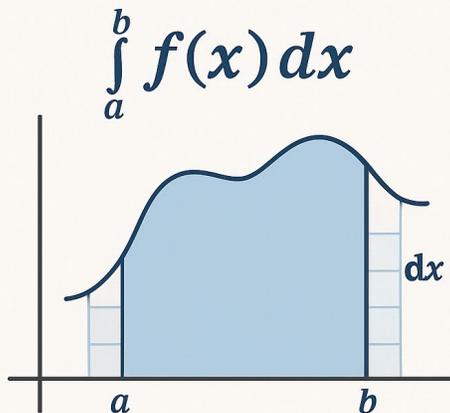
Here is the report:

Math 162 Student question: Where did the dx go?

Results are from CoPilot

Why Does dx Disappear When Evaluating an Integral?

## Why the $dx$ "Goes Away" When Evaluating an Integral



$$F(b) - F(a)$$



The  $dx$  is part of the integral notation, but it does not appear in the result.

### 1. $dx$ as a Notational Tool

Before evaluation: The  $dx$  in  $\int f(x) dx$  indicates that we're integrating with respect to  $x$ . It tells us which variable is changing and how the function is being accumulated.

After evaluation: Once the integral is computed, we're left with a number (or expression), and there's no longer a need to indicate the variable of integration. The  $dx$  served its purpose. Analogy: Think of  $dx$  like a measuring tape used to calculate area. Once you've measured and found the area, you don't need the tape anymore.

## 2. Riemann Sum Perspective

The integral is the limit of a sum:

$$\int f(x) dx \approx \sum f(x_i) \Delta x$$

Here,  $\Delta x$  is a small change in  $x$ —a finite approximation of  $dx$ .

When we take the limit as  $\Delta x \rightarrow 0$ , the sum becomes the integral, and  $dx$  represents an infinitesimal width.

After evaluating the integral, we've already summed over all those infinitesimal slices—so  $dx$  is no longer needed.

## 3. Differential vs. Antiderivative View

When teaching the Fundamental Theorem of Calculus:

$$\int_a^b f(x) dx = F(b) - F(a)$$

The  $dx$  is part of the integral notation, but once we apply the theorem, we're working with the antiderivative  $F(x)$ , and the  $dx$  doesn't appear in the result.

## 4. Emphasize the Role of $dx$ in Multivariable Contexts

In multivariable calculus,  $dx$ ,  $dy$ , etc., become even more important to distinguish which variable you're integrating over.

This helps students appreciate that  $dx$  is not just decoration—it's essential for understanding the operation.

But once the operation is complete, the result is a scalar (or function), and the differential is no longer needed.

## 5. Visual Explanation

You could draw a graph of a function and shade the area under the curve. Label thin rectangles with width  $dx$ . Once the area is computed, the rectangles (and their widths) are gone—the area is now just a number.

This report created by CoPilot was very thorough, accurate and it included ideas that I had not thought about. I have used CoPilot for a few other student questions, such as questions about indeterminate forms, limits and L'Hopital's Rule.

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- (3) I applied for LTI integration for Edfinity to be linked in Canvas with Canvas Admin in May 2025. Unfortunately, this was denied shortly before classes started. I am still using this on-line homework platform with my Math 160 students this semester. Since I was piloting this platform for the first time, I requested to have the college pay for the students \$29 fee for the Fall semester. Billy Reynolds agreed to fund the on-line homework for Fall 2025.

I also applied for a \$500 grant from MichMATYC to pay for the student fees. I was granted the \$500 and MichMATYC agreed to apply the funds for my students in Winter 2026.

### **Additional Sabbatical Task:**

#### 1) Grading for Growth: Alternative Grading Approaches

I spent a lot of time reading articles about Alternative Grading for my Sabbatical. I joined Grading for Growth by Robert Talbert and David Clark, both from GVSU, which sends out a new article every week.



**Robert Talbert was a keynote speaker at one of our seminar days here at KVCC.**

#### **Discover more from Grading for Growth**

Research and ideas about reforming grading practices in higher education and beyond.

The most recent article, [What three research articles on deliberate practice say about grading](#) includes information on

- Using low-stakes assessment to drive deliberate practice
- The view from clinical education
- More on reattempts without penalty

Other interesting articles include:

- [Alternative grading in a test-forward environment: Timed in-class testing is making a comeback. Can it coexist with alternative grading?](#)
- The connection between deliberate practice and alternative grading is closer than you might think
- [The Drama Triangle of Grading: Understanding the stress of grading and a path towards empowerment](#)

These articles include many alternative grading practices including project grading, oral assessments, group participation grades and others. While for many years I have allowed students to re-take high stakes tests over again without penalty, some of these other approaches require students to show more engagement with the material and participate in feedback with the instructor. For example, Dr Boelkins requires students to discuss learning targets which received a “NY” mark two or more times. Also, if students are very close to demonstrating understanding, they may be able to come discuss their errors or misconceptions in leu of re-taking the learning target assessment. As I experiment with a similar assessment approach as Matt’s, I hope that my students will enjoy the learning process and retain needed information for future classes and careers.

### **New Opportunity using AI:**

2) I learned of an opportunity to pilot MathGPT with my Calculus 2 courses for this Winter 2026 semester. After having a zoom meeting with Stephen Jennings about the new AI

product, I put in a request to have an LTI to allow MathGTP to sync with Canvas. I am waiting for the final decision from FSC and Molly before I get back with Stephen about whether I commit to Pilot MathGTP with my Calculus 2 students for Winter semester.

See one e-mail with Stephen below:

Hi Lisa,

Thank you for joining our meeting today. I believe MathGPT.ai can make a meaningful difference for your students, and I am **excited that you might want to participate in our Paid Reviewer Program for Spring 2026!** We will want to schedule time later this fall so I can help you get your courses created.

Additionally, I am attaching a recap of the deck we walked through, the one-pager detailing our pilot program, a one-page flyer describing MathGPT.ai, and a document outlining LMS integration.

We look forward to supporting you and your students this spring for your math courses!

Best,  
Stephen

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### **See Appendix 3: Additional Information on MathGPT**

#### ***Possible resources to be explored during the Sabbatical:***

- *OER texts: Active Calculus for Single Variable (Calculus 1 & 2), Multivariable (Calculus 3) and Active Prelude to Calculus by Matthew Boelkins from GVSU.*
- *Podcast: [Reducing calculus trauma by Laird Kramer Transcript](#)*
- *[Establishing a new standard of care for calculus using trials with randomized student allocation – Research article in Science](#) by Laird Kramer*
- *[Study: Revamped calculus course improves learning](#) by Angela Nicoletti*
- *[FIU \(Florida International University\) Research project briefly explained \(video\)](#)*
- *[Calculus: An Active Approach with Projects](#) by Steve Hilbert, John Maceli, Eric Robinson, Diane Driscoll Schwartz and Stan Seltzer*
- *J. Ellis, B. K. Fosdick, C. Rasmussen, Women 1.5 times more likely to leave STEM pipeline after calculus compared to men: Lack of mathematical confidence a potential culprit. PLOS ONE 11, e0157447 (2016).*
- *Chat GPT Prompts for Math Teachers: Ultimate Guide*
- *Harnessing AI in your classroom – “Demystifying ChatGPT: Helping Faculty Navigate the Evolving AI Landscape” – webinar offered through Mathematical Association of America (MAA)*
- *Exploring ChatGPT and AI in Education – Kognity, What does this new reality mean for the future of education?*

#### **How the objectives and activities meet sabbatical criteria:**

*My experiences with professional development over the past thirty plus years have allowed me many opportunities for learning and growth. One important lesson that I have learned is that change can be scary, uncomfortable, and difficult to establish. It would be easier to keep things just the way they are for the next ten or so years, but I am looking forward to the challenge of learning and practicing a new and different way of offering my Calculus classes with the goal of increased student learning and understanding.*

*Proposed sabbatical leave provides an opportunity for reflection and renewal:*

- *The proposed sabbatical leave will provide opportunities for refreshment of mind and body through sustained opportunities to reflect on my past, present and future goals to support student learning and success.*
- *Reflect on and recommit to teaching as a developing practice*
- *Search for positive improvements that support my teaching and student learning*

*Proposed activities will enhance professional effectiveness:*

- *Engage with active learning strategies in teaching calculus.*
- *Enhance student engagement, comprehension and retention of calculus pedagogy.*
- *Increase student participation using active and collaborative learning techniques with relevant examples. Building those activities into assignments and assessments that incorporate feedback and grading criteria.*

*Proposed sabbatical leave will enhance the institution's ability to fulfill its mission and/or improve service to students or other publics we serve:*

- *The activities completed during my sabbatical directly support KVCC's mission: Kalamazoo Valley Community College creates innovative and equitable opportunities that empower all to learn, grow and thrive. The open resources are being designed to be inclusive and available to all learners. The free cost to students for a textbook and on-line homework will benefit all calculus students. The real world examples from OpenAI tools will embrace change and innovation to our math program. Utilizing these new resources will help the students share new ideas and develop their intellectual inquiry. The proposed sabbatical leave will provide an opportunity to take more workshops, webinars and on-line courses (at least 3) and time to interact with other calculus faculty from GVSU, WMU, and others from the on-line course and forums.*

*The proposed activities also address components of the KVCC Board of Trustees' Commitment to Excellence including:*

- *Promote and provide learning through a variety of strategies – such as students working together on white boards to solve problems and share solutions.*
- *Commitment to access and equity – such as multiple learning activities and varied assessments.*
- *Understanding and effective use of technology – such as Calculus Calculators ([Symbolab](#)), 3D grapher's ([Desmos](#) and [Math3D](#)) and [GeoGebra](#)*
- *Address the needs of the job market for transfer and career programs – Real-life examples of the uses of Calculus (from the online class and other sources)*
- *Contain costs – using free or less expensive teaching and learning materials*

*The current Mathematics Chair at WMU, Dr. Melinda Koelling, shared that their department is working on assessment, program outcomes, and course outcomes for Calculus I and she has agreed to meet with me while on sabbatical to discuss their progress and results. Tim Kane and I used to meet with Melinda and the other instructors often when she was the coordinator for Calculus I and facilitated a group working with Teaching Assistants, prior to Covid.*

*I am very excited to learn and work on improving my teaching and enhancing my students learning, understanding and use of Mathematics.*

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I feel like this Sabbatical will continue for many years as I research learning, try new assessment strategies and continue to work with others who are using better and better technology, such as Doenet, a new educational platform, and are willing to share what works well with students. (<https://beta.doenet.org/>)

I intend to stay in touch with Dr. Boelkins as he is using Doenet to improve his on-line textbooks. Also, I will continue to work with Dr. Mingus at WMU to keep learning objectives and assessment of students similar and adjust when better ideas, processes and technology comes along.

I would like to thank the college community for accepting my sabbatical proposal and providing me with the opportunity to learn, grow, refresh and thrive.

I found this awesome video: [What is Calculus used for? | How to use calculus in real life](#)